

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listing of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A virtualization switch being connected with a plurality of storage units ~~unit~~ and a computer, said switch being connected with said storage unit through a plurality of communication ~~lines~~paths, comprising:

a plurality of interfaces being connected with said storage unit or said computer; and
an internal switch for connecting said plurality of interfaces with one another;

~~wherein each of said plurality of interfaces comprising a management table connected to said internal switch; and~~

a management table having information about a virtual logical unit number (virtual LUN) of a virtual volume, a LUN, a first communication path of said communication paths, a second communication path of said communication paths, and a data transfer starting information of a command, said virtual LUN being used to virtually represent a position of said LUN in said storage unit for said computer and relay a command, sent from said computer to said virtual LUN, to said LUN, said first communication path being used if trouble does not occur in said first communication path and said second communication path being used if trouble occurs in said first communication path;

wherein a first said interface of said plurality of interfaces receives a command for data transfer from said computer to said virtual volume, records ~~in said storage unit~~ an identifier for identifying said command, transfers said command to said LUN in said storage units through a first communication ~~path line~~ of said plurality of communication ~~paths~~lines based on said management table, detects, in response to said command ~~transferred to said storage unit~~, a trouble occurring in said first communication ~~path line~~, records a starting of presence or an absence of a said data transfer upon said command with said recorded identifier, transmits, if a ~~presence-starting~~ of a data transfer has been recorded, a frame for noticing an error of said received command to said computer, ~~otherwise determines not to transmit said frame for noticing said error of said received command to said computer, and thereafter~~ if starting of said

data transfer has not been recorded, creates a new data transfer upon said command by using said LUN corresponding to said virtual LUN without transmitting said frame for noticing said error and transfers a command ~~to be received from said computer~~ to said LUN in said storage unit through said a-second communication path~~line of said plurality of communication lines~~.

2. (Currently Amended) A virtualization switch as claimed in claim 1, wherein said first interface determines a trouble occurs in said first communication path ~~line~~ if no response to said command having been transmitted to said storage unit is received a certain length of time later.

3. (Currently Amended) A virtualization switch as claimed in claim 1, wherein said first interface detects a trouble occurring in said first communication path ~~line~~ by determining a cut-out of a physical connection with said storage unit.

4-6 (Canceled)

7. (Currently Amended) A virtualization switch as claimed in claim 1, wherein said first interface provides said computer with a virtual storage and, if a command from said computer to said virtual storage is received, translates said command to said virtual storage into a command to said storage unit.

8. (Currently Amended) A method of transferring a frame in a virtualization switch ~~being~~ connected with a plurality of storage units and a computer through a plurality of communication paths~~lines~~, comprising the steps of:

managing, in a management table, information about a virtual logical unit number (virtual LUN) of a virtual volume, a LUN, a first communication path of said communication paths, a second communication path of said communication paths, and a data transfer starting information of a command, said virtual LUN being used to virtually represent a position of said LUN in said storage unit for said computer and relay a command, sent from said computer to said virtual LUN, to said LUN, said first communication path being used if trouble does not

occur in said first communication path and said second communication path being used if trouble occurs in said first communication path;

receiving a command for data transfer from said computer to said virtual volume, recording an identifier for indicating said received command, then transferring said command to said LUN in said storage units through a first communication path ~~line~~ of said plurality of communication ~~lines~~ paths based on said management table;

detecting, in response to said ~~step of transferring said~~ command, a trouble occurring in said first communication ~~line~~ path;

recording a starting of said ~~presence or an absence of a~~ data transfer upon said command with said recorded identifier;

transmitting, if a starting presence of a of said data transfer has been recorded, a frame for noticing an error of said received command to said computer, ~~otherwise determining not to transmit said frame for noticing said error of said received command to said computer if~~ starting of said data transfer has not been recorded; and

~~after said transmitting or determining step, creating a new data transfer upon said~~ command by using said LUN corresponding to said virtual LUN without transmitting said frame for noticing said error, and transferring into said LUN in said storage unit a command to be received from said computer through a second communication ~~path~~ line of said plurality of communication ~~paths~~ lines.

9-10 (Canceled)